REMARKS

In view of the above amendments and the following remarks, reconsideration of the outstanding office action is respectfully requested. Pursuant to 37 CFR § 1.121, attached as Appendix A is a Version With Markings to Show Changes Made.

Applicant notes that there is no indication in the outstanding office action or in the PTO-892 form that the references cited in the international search report have been considered, although the Notice of Acceptance of Application under 35 U.S.C. 371 and 37 CFR 1.494 or 1.495 (Form PCT/DO/EO/903) indicates that both the international search report and the copies of the documents are present in the national stage file. Therefore, applicant respectfully requests the PTO to confirm whether the documents cited in the international search report have been considered.

In the building industry, panels are widely used in interior walls, partitions and ceilings. One of the most common type of paneling used is plasterboard, which traditionally is formed from a core of gypsum or anhydrite plaster, faced with two sheets of heavy paper. Plasterboard has gained widespread acceptance because it is inexpensive, relatively light weight, can be easily cut and provides a good surface finish.

However, there are significant problems with plasterboard. Traditional plasterboard panels are not self supporting and need to be fixed to a supporting frame such as a stud wall or the like. This substantially increases the cost of installation. Furthermore, plasterboard has relatively poor thermal and acoustic insulation properties as compared to block walls, and is relatively inflexible, thereby making it difficult to form into complex shapes.

Various proposals have been made to address these problems. These include the development of hollow core reinforced plaster panels or prefabricated sandwich panels made from two sheets of plasterboard bonded to a paper honeycomb core. While such designs are self supporting, they have limited applications and have not gained widespread acceptance.

The present invention is directed to overcoming the above-noted deficiencies in the prior art.

With respect to the objection to the drawings under 37 C.F.R. § 1.83(a), applicant respectfully believes that the U.S. Patent and Trademark Office ("PTO") failed to recognize that the reinforcing member is shown in the drawings. The reinforcing member 40

can be identified in Figures 6, 10, and 12. Accordingly, applicant submits that the above objection is improper and should be withdrawn.

The objection to the specification for lacking an abstract of the disclosure and for lacking the appropriate section heading is overcome by the above amendments. The abstract is the same as the abstract appearing in the published PCT application.

The objection to claims 9, 20, 21, 32, and 33 is obviated in view of the above amendments. Specifically, claim 32 has been deleted and claim 33 has been rewritten in independent form. The misspelling of the term "join" has been replaced by the term "joint." Claim 21 has been amended to correct the grammatical error relating to the projections. The dependency of claim 20 has been corrected.

The rejection of claims 1-12 and 19-33 under 35 U.S.C. § 112, second paragraph, for indefiniteness is respectfully traversed in view of the above amendments. Specifically, the phrase "of the like/of a like/and a like" has been amended to "another" or "said another," where appropriate. The term "the join" in claim 9 has been amended to "a joint."

The rejection of claim 13 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4.937,125 to Sanmartin et al. ("Sanmartin") is respectfully traversed.

Sanmartin discloses a sandwich panel designed for making multilayer structures resistant to shocks and thermal aggressions. The multilayer structure is of the type with a core interposed between an external skin and an internal skin. The external skin consists of an assembly of at least three layers made integral by sealing or bonding: a first layer made of composite material, a second layer made of a synthetic cellular material with a low thermal conductivity coefficient, a third layer obtained by lamination of a composite material. Sanmartin discloses that the composite material of the first and third layers consists of glass or aramide fiber reinforced resins, and the second layer is made of a thermoplastic material chosen from the group including polypropylene, polyethylene and their copolymers, etc. The core consists of a plate of polystyrene, polyurethane, polyvinylchloride or polyethylene foam. The internal skin is identical to the external skin or consists of a metal plate, for instance aluminum or a thermoplastic resin reinforced with glass, carbon or aramide fibers.

Claim 13 of the present invention is directed to a laminated building panel including a paper covering bonded directly onto a metal substrate using a hot melt reactive

adhesive. Contrary to what is stated in the outstanding office action, there is no disclosure in Sanmartin of a building panel including a "paper covering bonded directly onto a metal substrate." Since each and every claim element is not disclosed in Sanmartin, the cited reference fails to anticipate claim 13. Thus, the rejection based on Sanmartin is improper and should be withdrawn.

The rejection of claims 19, 21-27, and 32-33 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4.186,539 to Harmon et al. ("Harmon") is respectfully traversed.

Harmon discloses a modular building panel fabricated with longitudinally extending marginal edge portions of mating tongue and socket configurations for enabling interfitting assembly of adjacently disposed panels. The tongue and socket edge portions of each panel are provided with respective interlocking bead and groove conformations for cooperative interlocking engagement for securing adjacently disposed panels in assembled relationship.

As amended, the claims of the present application are directed to a "building system including a building panel and a separate reinforcing element . . . wherein the reinforcing element . . . is secured in place by locating said reinforcing element between the interfitting connecting elements to conceal the reinforcing member which is operative to improve the load bearing characteristics of the interconnected panels." Although Harmon is cited as teaching the reinforcing element by the region which appears to be the outer rounded corner of the tongue ("where 18 and 29 points to"), this outer rounded corner 29 is a part of the tongue 11 which is formed by appropriate bending or forming of the metal skins 13 and 14 of the panel and, thus, is not separate to the panel. Therefore, Harmon fails to teach a "separate" reinforcing element. The outstanding office action, on page 6, also makes reference to 16 and 17 shown in Harmon as teaching the reinforcing element. However, as stated at column 4, lines 24 to 32 of Harmon, channels 16 and 17 are provided for mechanical coupling of the two opposed sheet metal skins 13 and 14 and are securely assembled with the respective skins either through mechanical coupling or by utilization of other appropriate fastening means. By contrast, the reinforcing element of the claimed invention is arranged to interfit at the joint between adjacent panels and is secured in place by locating it between the interfitting connecting elements (see Figures 6, 10, and 12). Since Harmon fails to provide a separate reinforcing element where the reinforcing element "is secured in place by locating

said reinforcing element between the interfitting connecting elements to conceal the reinforcing member which is operative to improve the load bearing characteristics of the interconnected panels," as required by the claims, each and every claim element is not disclosed in this reference. Thus, the rejection based on Harmon is improper and should be withdrawn.

The rejection of claims 1-12, 14-16, and 28-31 under 35 U.S.C. § 103(a) for obviousness over Harmon in view of Sanmartin is respectfully traversed.

Harmon discloses a modular building panel that has interlocking bead and groove conformations formed in mating interfitting tongue and socket structures and is provided with sealing strips for forming a fluid seal between adjacent assembled panels. Although Harmon discloses that the panels can be fabricated as composite structures utilizing thin sheet metal skins as the exterior components and having the interior substantially filled with suitable thermal insulating material, it does not teach the panel having a paper covered metal sheet for its major surface, as recited by claims 1-12 and 14-16 of the present invention. Harmon also does not suggest a panel having a paper covered metal sheet, since its main objective is to provide interconnected building panels which form a fluid impervious seal by attaching sealing strips to the panel structure.

Sanmartin discloses a sandwich panel for making multilayer structures resistant to impact and thermal aggressions. The multilayer structure is of the type with a core interposed between an external skin and an internal skin. Sanmartin discloses that the composite material of the first and third layers of the external skin consists of glass or aramide fiber reinforced resins, and the second layer is made of a thermoplastic material chosen from the group including polypropylene, polyethylene and their copolymers, etc. The core consists of a plate of polystyrene, polyurethane, polyvinylchloride or polyethylene foam. The internal skin is identical to the external skin or consists of a metal plate, for instance aluminum or a thermoplastic resin reinforced with glass, carbon or aramide fibers. However, Sanmartin does not teach or suggest a building panel including a "paper covering" bonded to a metal substrate, as recited by claims 1-12 and 14-16 of the present invention. Moreover, to use such a paper covering would be completely inappropriate to achieve the thermal resistance desired in Sanmartin.

In addition, neither Harmon nor Sanmartin discloses or suggests a building system including a building panel and a separate reinforcing element where the reinforcing

element is secured in place by locating said reinforcing element between the interfitting connecting elements to conceal the reinforcing member which is operative to improve the load bearing characteristics of the interconnected panels, as recited by claims 28-31 of the present invention.

Although Harmon is cited as teaching the reinforcing element by the region which appears to be the outer rounded corner of the tongue ("where 18 and 29 points to"), this outer rounded corner 29 is a part of the tongue 11 which is formed by appropriate bending or forming of the metal skins 13 and 14 of the panel and, thus, is not separate to the panel. Thus, Harmon fails to teach a "separate" reinforcing element. In addition, channels 16 and 17 described in Harmon, which are also cited as teaching the reinforcing element, are provided for mechanical coupling of the two opposed sheet metal skins 13 and 14 and "are securely assembled with the respective skins either through mechanical coupling or by utilization of other appropriate fastening means." By contrast, the reinforcing element of the claimed invention is arranged to interfit at the joint between adjacent panels and is secured in place by locating it between the interfitting connecting elements (see Figures 6, 10, and 12). Thus, Harmon fails to provide a separate reinforcing element where the reinforcing element "is secured in place by locating said reinforcing element between the interfitting connecting elements to conceal the reinforcing member which is operative to improve the load bearing characteristics of the interconnected panels," as required by claims 28-31 of the present invention. The advantages of locating the reinforcing element between the interfitting connecting elements is that it improves the load bearing characteristics of the interconnecting panels at the joint. Harmon fails to suggest or appreciate these advantages of a building panel with the claimed features. Thus, the disclosure in Harmon is mainly directed to providing an improved fluid impervious seal between adjacent assembled building panels by attaching sealing strips to the panel structure, but does not have the separate reinforcing element of the present invention, which improves the load bearing characteristics of the interconnected panels.

As for Sanmartin, this reference is mainly concerned with providing a sandwich panel having a multilayer structure which is impact and thermal resistant. Sanmartin does not even discuss building panels of the interlocking type, let alone suggest the use of separate reinforcing elements to improve the load bearing characteristics of interconnected panels.

Accordingly, applicant submits that the rejection under 35 U.S.C. § 103(a) is improper and should be withdrawn.

In view of the all of the foregoing, applicants submit that this case is in condition for allowance and such allowance is earnestly solicited.

Respectfully submitted,

Date: May 6, 2002

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May 6 2002 | Ruth R. Smith
Date | Ruth R. Smith

Appendix A

Version With Markings to Show Changes Made

In reference to the amendments made herein to the specification and claims 1, 2, 5-9, 19-21, 26, and 33, additions appear as underlined text, while deletions appear as bracketed text, as indicated below:

In the Specification:

The paragraph beginning at page 6, line 23 and ending at page 6a, line 8 should be changed as follows:

According to this aspect, the present invention provides a building system including a building panel and a reinforcing element, the building panel having spaced metal sheets interconnected by a core, said metal sheets defining opposite major surfaces of said panel, each of said metal sheets including opposite edge regions which form longitudinal edge regions of the panel, wherein at least one of the edge regions of the metal sheets on both opposite sides of the panel is profiled to form connecting elements, the connecting elements of the longitudinal edge regions of the panel being adapted to interfit with the connecting element of a respective one of the longitudinal edge regions of a like panel, the panel being configured such that the major surfaces of the interconnected panels are aligned and in substantially abutting relationship to form a substantially continuous surface and wherein the reinforcing element is operative to be installed at the [join] joint formed on connection of the panel with a like panel and is secured in place by locating between the interfitting connecting elements to form a concealed reinforcing member which is operative to improve the load bearing characteristics of the interconnected panels.

The paragraph beginning at page 7, line 12 and ending at page 7, line 15 should be changed as follows:

In a particularly preferred form, the sheet structure includes longitudinal edge regions which are profiled to enable the panels to be connected in abutting relationship with a like panel in edge to edge relationship and the reinforcing member is locatable within the [join] joint formed at the abutting panels.

The paragraph beginning at page 10, line 8 and ending at page 10, line 16 should be changed as follows:

With this arrangement, the fixed panels 10 have respective outer faces which incorporate the plasterboard paper covering and thereby have a general appearance of plasterboard. If required, edge trim (not shown) can be inserted between the adjacent panels. Typically the panels would include a bead or similar protrusion which locates within an associated groove (not shown) formed in the edge regions 13 and 14 of the respective panels. Alternatively, the [join] joint between the panels could be concealed so that the ceiling surface is continuous using standard finishing techniques such as plaster rendering or the like.

The paragraph beginning at page 12, line 29 and ending at page 13, line 2 should be changed as follows:

In the illustrated form, both the longitudinal edge regions 24 and 25 of the panel is slightly waisted to form a recessed portion 37 in the outer surface of both the structures 21 and 22. This recess is designed to enable the [join] joint 36 between adjacent panels to be easily covered over by plaster tape or plaster rendering which will be applied within the recess and create a flush surface across the [join] joint.

The paragraph beginning at page 14, line 10 and ending at page 14, line 16 should be changed as follows:

Figure 10 illustrates a further variation of the panel 20. This panel includes many similar features to the earlier embodiments and accordingly like reference numerals have been given to like features. In a similar arrangement to the previous embodiments, the panel 20 includes longitudinal edge regions 24, 25 which are profiled to enable the panel 20 to interlock with a like panel. A reinforcing member 40 is also arranged to interfit at the [join] joint between adjacent panels.

The paragraph beginning at page 14, line 22 and ending at page 14, line 30 should be changed as follows:

In the embodiment of Figure 10, the profiles have been specifically designed to give the panel enhanced load bearing characteristics at [it join] its joint with an adjacent

panel. The male and female couplings are shaped to provide generally a part box section which interlocks with a snap fit action. This arrangement has the advantage that the box section provides good load bearing characteristics and the snap fit action draws the interlocking members together. This inhibits inadvertent separation of the members and also enables the interlocking panels to act as a single unit thereby enhancing the panels overall load bearing capabilities at this connection.

In The Claims:

1. (Amended) A building panel including a metal sheet substrate and a paper covering bonded to said substrate, wherein said paper covered metal sheet forms a major surface of the panel and wherein said metal sheet includes opposite edges which are shaped to form edge regions of the panel, each edge region being formed to include a connecting element which extends along that edge region and which allows for interconnection of the panel with [a like] another panel, one connecting element being formed as a channel and the other formed as a projection, the projection of one edge region being configured to interfit within the channel of the other edge region of [a like] said another panel to form a load bearing region capable of accommodating loading applied to said interconnected panels, and wherein when interconnected, the major surfaces of the interconnected panels are aligned and generally in abutting relationship to form a substantially continuous exposed surface.

2. (Amended) A building panel according to claim 1, further including a generally planar abutment surface at each longitudinal edge region, the abutment surface extending generally perpendicular to said major surface and wherein the connecting elements are disposed inwardly of the major surface with said abutment surfaces being disposed between the major surface and the said connecting elements, wherein the paper covering gives the panel a surface characteristic which is substantially the same as a plasterboard panel and wherein, in use, the panel is operative to form a substantially continuous exposed surface by connection of the panel with [a like] another panel through interfitting of respective ones of the connecting elements, or by abutment of an edge of a plasterboard panel against a respective one of said abutment surfaces.

5. (Twice Amended) A building panel according to claim 1, wherein the projection is also in the form of a channel and interfits in nesting engagement within the channel of [a like] said another panel.

6. (Twice Amended) A building panel according to claim 1, wherein the projection has an outer surface which is complimentary to the inner surface of the channel so that on interconnection of the panels, the projection is in engagement with substantially all of the inner surface of the channel of [a like] said another panel.

7. (Twice Amended) A building panel according to claim 1, wherein the projection is operative to interfit with a channel of [a like] said another panel in a snap fit arrangement.

8. (Amended) A building panel according to claim 7, wherein the channel includes a re-entrant portion on its inner surface, and wherein the projection includes a crest portion on its outer surface and wherein the crest portion on the projection of one panel is arranged to engage with the re-entrant portion of the channel of [a like] said another panel in a snap fit arrangement.

9. (Twice Amended) A building panel according to claim 1, wherein the major surface incorporates a recess adjacent its edge regions to facilitate concealment of [the join] a joint between the panel and [a like] said another panel.

19. (Amended) A building system including a building panel and a separate reinforcing element, the building panel having spaced metal sheets interconnected by a core, said metal sheets defining opposite major surfaces of said panel, each of said metal sheets including opposite edge regions which form longitudinal edge regions of the panel, wherein at least one of the edge regions of the metal sheets on both opposite edge regions of the panel is profiled to form connecting elements, the connecting elements of the longitudinal edge regions of the panel being adapted to interfit with the connecting element of a respective one of the longitudinal edge regions of [a like] another panel, the panel being configured such that the major surfaces of the interconnected panels are aligned and in substantially abutting

relationship to form a substantially continuous surface and wherein the reinforcing element is operative to be installed at [the join] a joint formed on connection of the panel with [a like] said another panel and is secured in place by locating said reinforcing element between the interfitting connecting elements to [form a concealed] conceal the reinforcing member which is operative to improve the load bearing characteristics of the interconnected panels.

20. (Amended) A building system according to claim [17] 19, wherein the edge region of each of the metal sheets of the building panel is profiled to form [a] said connecting element, and wherein in use, the reinforcing element locates between each pair of interfitting connecting elements at the [join] joint between the interconnected panels to thereby interconnect the opposite metal sheets of each of the connected panels.

21. (Twice Amended) A building system according to claim 19, wherein the connecting elements are in the form of interfitting channels and projections which are disposed along opposite edges of the panel, [the or] each channel incorporating opposite walls interconnected by a substantially flat base portion, and wherein [the or] each projection is shaped to interfit with the channel of [a like] said another panel and includes opposite walls interconnected by a substantially flat apical portion, and wherein said reinforcing element includes at least one engagement part which is generally U-shaped and [locates] located between [a] said interfitting channel and projection of the interconnected panels.

26. (Twice Amended) A building system according to claim 19, wherein the connecting elements are adapted to interfit with the connecting elements of [a like] said another panel and with the reinforcing elements in a snap fit arrangement.

33. (Twice Amended) A reinforcing element [when used in a building system according to claim 19] for improving the load bearing characteristic of interconnected building panels, wherein said reinforcing element is configured to be installed at a joint formed on connection of one panel having a connecting element with another panel having a connecting element configured to interfit with the connecting element of the other panel and is secured in place by locating said reinforcing element between the pair of interfitting

connecting elements at the joint between the interconnected panels to conceal the reinforcing member.

((A-3))